

WHAT IS CLAIMED IS:

1. A piezoelectric oscillator, comprising:
a first package housing a piezoelectric resonator element therein and having external terminal portions connected to excitation electrodes of the piezoelectric resonator element; and
a second package housing an oscillating circuit element constituting an oscillating circuit, the first package being superposed on and fixed to the second package, in the second package, the oscillating circuit element, connected to a lead frame and being molded out of resin, and connection terminal portions and mounting terminals formed out of the lead frame being exposed at the second package, and the external terminal portions of the first package being exposed at side surfaces of the first package, and the external terminal portions and the connection terminal portions of the second package being electrically connected to each other by a conductive material.
2. The piezoelectric oscillator according to Claim 1, material-removed portions being formed in peripheral edge portions of the first package, and the material-removed portions being provided with the external terminal portions.
3. The piezoelectric oscillator according to Claim 1, the first package having a laminated structure, conductive patterns being provided in an interlayer thereof, and the conductive patterns being electrically connected to a cover bonded to the first package.
4. The piezoelectric oscillator according to Claim 1, the external terminal portions being separated from a lower end of the first package by a predetermined gap.
5. The piezoelectric oscillator according to Claim 1, inspection terminal portions connected to the excitation electrodes of the piezoelectric resonator element being exposed at a bottom surface of the first package.
6. The piezoelectric oscillator according to Claim 1, concave portions being formed in a surface of the first package bonded to the second package.
7. The piezoelectric oscillator according to Claim 6, the inspection terminal portions connected to the excitation electrodes of the piezoelectric resonator element being exposed at the concave portions.
8. The piezoelectric oscillator according to Claim 1, places where the external terminal portions of the first package and the connection terminal portions of the second package are connected to each other by the conductive material, and/or the inspection terminal portions being coated with a non-conductive material.

9. The piezoelectric oscillator according to Claim 1, a convex portion being formed between the external terminal portions provided on the side surfaces of the first package and the cover bonded to the first package.

10. The piezoelectric oscillator according to Claim 1, the second package, comprises:

a first lead frame; and

a second lead frame, and

end portions of the first lead frame being bent in a direction receding from the first package and being exposed externally to form first connection terminal portions, end portions of the second lead frame being bent in a direction approaching the first package and being exposed externally to form second connection terminal portions, the first connection terminal portions and the second connection terminal portions being arranged to two-dimensionally overlap each other, the oscillating circuit element being connected to inner terminals of the first and second lead frames, the first connection terminal portions being used as the mounting terminals, and the second connection terminal portions being used as the connection terminal portions electrically connected to the external terminal portions of the first package.

11. A portable phone employing a piezoelectric oscillator, the piezoelectric oscillator, comprising:

a first package housing a piezoelectric resonator element therein and having external terminal portions connected to excitation electrodes of the piezoelectric resonator element; and

a second package housing an oscillating circuit element constituting an oscillating circuit, the first package being superposed on and fixed to the second package, the portable phone obtaining control clock signals by using the piezoelectric oscillator,

in the second package, the oscillating circuit element, which is connected to a lead frame, being molded out of resin, and connection terminal portions and mounting terminals formed out of the lead frame being exposed at the second package, and

the external terminal portions of the first package being exposed at side surfaces of the first package, and the external terminal portions and the connection terminal portions of the second package being electrically connected to each other by a conductive material.

12. An electronic apparatus employing a piezoelectric oscillator, the piezoelectric oscillator comprising:

a first package housing a piezoelectric resonator element therein and having external terminal portions connected to excitation electrodes of the piezoelectric resonator element; and

a second package housing an oscillating circuit element constituting an oscillating circuit, the first package being superposed on and fixed to the second package, the electronic apparatus obtaining control clock signals by using the piezoelectric oscillator,

in the second package, the oscillating circuit element, which is connected to a lead frame, being molded out of resin, and connection terminal portions and mounting terminals formed out of the lead frame being exposed at the second package, and

the external terminal portions of the first package being exposed at side surfaces of the first package, and the external terminal portions and the connection terminal portions of the second package are electrically connected to each other by a conductive material.